

ABSTRACT

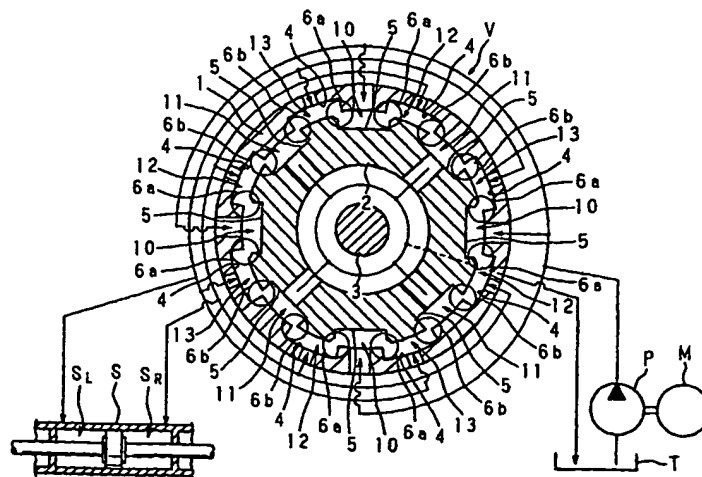
The present invention provides a hydraulic control valve and a power steering apparatus using the same in which chamfer portions are provided only on throttle portions
5 between oil supply chambers and first oil feed chambers and between the oil supply chambers and second oil feed chambers, or only throttle portions between oil discharge chambers 11 and the first oil feed chambers and between the oil discharge chambers 11 and the second oil feed chambers. With this
10 design, even if six or more oil grooves of each of a valve body and a valve spool are disposed at equal distances from one another, when the minimum flow rate to be controlled is reduced as small as possible, a distribution amount for one portion where the flow rate is controlled can be doubled as
15 compared with a conventional structure, it is possible to stabilize the hydraulic characteristics in a region where the flow rate to be controlled is minimum, and to eliminate the discontinuity of the hydraulic characteristics.



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<p>(21) 国際出願番号 PCT/JP99/06690</p> <p>(22) 国際出願日 1999年11月29日(29.11.99)</p> <p>(30) 優先権データ 特願平10/340690 1998年11月30日(30.11.98) JP</p> <p>(71) 出願人 (米国を除くすべての指定国について) 光洋精工株式会社(KOYO SEIKO CO., LTD.)(JP/JP) 〒542-0081 大阪府大阪市中央区南船場三丁目5番8号 Osaka, (JP)</p> <p>(72) 発明者 ; および (75) 発明者 / 出願人 (米国についてのみ) 佐野 修(SANO, Osamu)(JP/JP) 〒542-0081 大阪府大阪市中央区南船場三丁目5番8号 光洋精工株式会社内 Osaka, (JP)</p> <p>(74) 代理人 河野登夫(KOHNO, Takao) 〒540-0035 大阪府大阪市中央区釣鐘町二丁目4番3号 河野特許事務所 Osaka, (JP)</p>		<p>(81) 指定国 US, 欧州特許 (DE, FR, GB)</p> <p>添付公開書類 国際調査報告書</p>

(54)Title: HYDRAULIC CONTROL VALVE AND POWER STEERING DEVICE USING THE VALVE

(54)発明の名称 油圧制御弁及びこれを用いた動力舵取装置



(57) Abstract

A hydraulic control valve and a power steering device using the valve, wherein a chamfered part is provided only in restricted parts between an oil supply chamber and first and second oil feed chambers or between an oil drain chamber (11) and first and second oil feed chambers, whereby, even if oil grooves of a valve body and a valve spool are positioned at six or more equal intervals in circumferential direction, respectively, the amount of oil distribution per flow control position can be doubled as compared with the conventional amount when the minimum control flow is reduced as far as possible so as to stabilize the hydraulic characteristics in the minimum control flow.